

ECE 221 Digital Logic Design

Sectional Objectives

Section I - Dewey Chapters 1-4

After reading and studying Chapters 1 through 4 you should be able to:

- convert values between decimal, binary, hexadecimal and octal number systems.
- perform addition and subtraction on binary, hexadecimal and octal numbers.
- describe negative numbers in binary two's complement representation and be able to add and subtract two's complement numbers.
- represent numbers as an ASCII or gray code.
- create a truth table for a combinational system using literal or symbolic analysis.
- understand the operation of the basic unary and binary operations.
- represent a combinational expression in the following forms: Sum-of-Products (SOP), Product-of-Sums (POS), minterm list, maxterm list.
- create a minimized combinational circuit using only universal gates (NANDs, NORs)
- use DeMorgan's theorem to complement a function or convert a function to a new representation.
- use Karnaugh maps to minimize logic expressions in either SOP or POS form (recognize prime implicants, essential prime implicants and secondary prime implicants).
- create a minimized logic expression from a specification (word problem).

Test #1 Information:

- Open Book, Closed Note
- 4-5 Problems